

Appl. No. 10/628,842
Reply to Office Action dated Aug. 20, 2007
Response dated Jan. 18, 2008

IN THE CLAIMS:

Please amend the claims to read as follows:

1. (currently amended) A process for producing nanocarbon materials, comprising the following steps:

a. providing an unsupported catalyst with a particle size of \leq 10 nm and a surface area greater than 50 m^2/g ;

b. reacting carbonaceous feedstocks in the presence of the catalyst over a given period of time to produce carbon nanofibers with over 99% purity and a morphological selectivity greater than 95% in yields \geq 140g carbon/g catalyst with higher reactivity.

2. (previously presented) The process in claim 1, wherein the catalyst is a metal oxide catalyst selected from the metals including iron, nickel, cobalt, lanthanum, gold, silver, molybdenum, iron-nickel, iron-copper and their alloys.

3. (currently amended) The process in claim 1, wherein the catalyst is prepared to specific parameters (size distribution, composition and crystallinity) specified and via a flame synthesis process.

4. (previously presented) The catalyst in claim 1, wherein the catalyst possesses a single crystal morphology.

5. (currently amended) The process in claim 1, wherein the yield of carbon nanomaterial resulted in \geq 140g carbon per g/catalyst.

6. (currently amended) The process in claim 1, wherein the morphology of the carbon micro structure can be selectively controlled to achieve various desired orientations in selectivities of \geq 90%.

7. (currently amended) A process for producing nanocarbon materials, comprising the following steps:

a. providing an unsupported metal oxide catalyst with a particle size of about

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\leq [[=]]10 nm and a surface area greater than 50 m²/g;

b. reacting carbonaceous feedstocks in the presence of the catalyst over a given period of time to produce carbon nanofibers with over 99% purity and a morphological selectivity between 95% and 100% with yield \geq [[=]]140g carbon/g catalyst.

8. (previously presented) The process in claim 7, wherein the reaction took place at a temperature not exceeding 550 C.

9. (currently amended) The process in claim 7, wherein the purity of carbon nanofibers was \geq [[=]]99% after 8 hours reaction time.

10. (previously presented) The process in claim 7, wherein the metal oxide catalyst is selected from a group of metals including iron, nickel, cobalt, lanthanum, gold, silver, molybdenum, iron-nickel, iron-copper and their alloys.

20. (currently amended) The process in claim 1, wherein the nanofibers possess a morphological selectivity between 95% and 100% in yields \geq [[=]]140g carbon/g catalyst with higher reactivity.